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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/901,500	07/03/2001	Chia-Pin Lin	JCLA7208	5186

7590 11/20/2003  
J.C. PATENTS INC.  
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EXAMINER

KILKENNY, TODD J

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 11/20/2003

11

Please find below and/or attached an Office communication concerning this application or proceeding.

CLO 11

**Office Action Summary**

Application No. 09/901,500		Applicant(s) LIN ET AL	
Examiner Todd J. Kilkenny		Art Unit 1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 September 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8, 10, 11, 13-20, 22 and 23 is/are pending in the application.
- 4a) Of the above claim(s) 10, 11, 22 and 23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 13-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All   b) ☐ Some \* c) ☐ None of:  
     1. ☐ Certified copies of the priority documents have been received.  
     2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
     3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
 a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

***Election/R strictions***

1. This application contains claims 10, 11, 22 and 23 drawn to an invention nonelected with traverse in Paper No. 6. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 – 7, 13 – 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al (US 4,400,438) in view of Watanabe et al (US 3,936,575) and Delgadillo et al (US 4,313,995; newly cited).

Takahashi et al disclose a process for producing a fire retardant and heat resistant copper-clad laminated board including the steps of impregnating a base material (e.g. glass fabric) with a varnish compound comprising at least one maleimide resin, drying the impregnated base material to prepare a prepreg, and contact bonding under heat and pressure two sheets of copper foil sandwiching the base material (Col. 1, line 63 – Col. 2, line 37). Takahashi et al disclose impregnating by dipping the glass fabric (Col. 8, lines 53 – 66) failing to suggest roll coating. Furthermore, Takahashi et al fail to positively suggest forming surface layers (applicant's claimed "isolating material") having predetermined thickness to which the metal foils are laminated to.

Watanabe et al disclose a method for manufacturing a metal-clad laminate as a baseboard for a flexible printed circuit, consisting of a metal foil and base sheet composed of a fibrous base material impregnated with a resin composition. The method comprises a roll-laminating process in which an insulating fibrous base material in web form is impregnated with a resin composition by roll-coating, evaporating the solvent in the resin composition in a drying zone to form a B-stage resin composition and then sending the thus treated base material to a press-roll zone where a metal foil is pressed with heating to form the metal clad laminate (Col. 10, line 54 – Col. 11, line 3, Col. 13, lines 9 - 46).

Delgadillo teach a method for producing a circuit and suggest typically the substrate will be formed by impregnating sheets of insulating materials such as glass, cloth or glass mat with prepolymer resin. Delgadillo further suggest sufficient impregnating resin is utilized so that a surface layer is formed on the substrate for adhering a metal sheet thereto (Col. 4, lines 32 – 65).

As to the roll coating limitation of independent claims 1 and 13, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the roll-laminating process of Watanabe et al as an alternative to the dipping to impregnate process of Takahashi et al as the roll-laminating process as suggested by Watanabe et al is a continuous process that simplifies the course of manufacture and increases the production speed to obtain an economical advantage (Watanabe et al, Col. 2, line 49 – Col. 3, line 14).

As to the additional limitations of independent claims 1 and 13 requiring the isolating layers to be coated with predetermined thickness on the substrates surfaces, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ sufficient resin in the roll coating impregnating process of Takahashi et al in view of Watanabe et al as presented above to form surface layers of the resin (i.e. isolating material) on the upper and lower surfaces of the substrate as is suggested by Delgadillo so that adequate adhesive is available at the substrate-foil interface to form a strong lamination therebetween. It is additionally noted, one of ordinary skill in the art at the time of the invention would have readily appreciated said surface layer as suggested by Delgadillo as being a separate layer beyond the impregnated resin of the substrate and therefore would have a predetermined thickness.

As to claims 2 and 14, by the time the excess resin forms the surface layer (applicant's "isolating layer"), the substrate to which the layer has been applied comprises an impregnated glass fabric. Takahashi et al suggest epoxy resin as the impregnating resin.

As to claims 3 – 5 and 15 – 17, as the impregnating resin forms the surface layer as suggested by the references as combined, the surface layer would also include epoxy resin or at least one maleimide resin as is suggested by Takahashi et al (Col. 5, lines 9 – 68).

As to claims 6 and 20, Watanabe et al suggest impregnating the fibrous base material with the resin in such a manner as to manifest its adhesive strength to the metal foil and Delgadillo et al suggest providing sufficient resin so as to form a

separately identified surface layer. One of ordinary skill in the art at the time of the invention would have readily appreciated the amount of resin supplied and the speed of the impregnating rolls as examples of equipment parameters as controllable in determining the thickness of the surface layer formed.

As to claim 7 and 18, Takahashi et al and Watanabe et al both suggest the metals foils can be conductive foils of copper.

4. Claims 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al (US 4,400,438) in view of Watanabe et al (US 3,936,575) and Delgadillo (US 4,313,995; newly cited) as applied to claims 1 and 13 above, and further in view of Yates et al (US 6,270,648).

Both Takahashi et al and Watanabe et al disclose copper as the metal foil and Watanabe et al further disclose that the surface of a metal foil to be bonded may be subjected to a mechanical treatment or to a chemical treatment (Col. 9, lines 53 – 63), but neither reference fails to positively recite high profile, low profile or reverse copper foil.

In US 6,270,648, Yates et al is evidence that different treatments are known to produce high profile, low profile or reverse copper foils to increase the adhesion strength of the foil to the base substrate in forming metal clad laminates.

It therefore would have been obvious to one of ordinary skill in the art at the time of the invention to employ treated copper foil with increased adhesion strength as the copper foil of Takahashi et al and/or Watanabe et al, wherein such treatments are

known in the art to produce low profile, high profile or reverse copper foils as evidenced by the secondary reference to Yates et al (Col. 4, line 37 – Col. 4, line15).

***Response to Arguments***

5. Applicant's arguments with respect to claims 1, 2, 6, 13, 14 and 20 have been considered but are moot in view of the new ground(s) of rejection.

As to independent claims 1 and 13, newly cited Delgadillo is provided as evidence to suggest it would have been obvious to employ sufficient resin in impregnating the substrate of Takahashi et al in view of Watanabe et al as previously presently so as to form surface layers of the resin on the surfaces of the impregnated substrates for adhering metal foils thereto, wherein said resin surface layers are taken to read on applicant's claimed "isolating layers having predetermined thickness".

As to dependent claims 2 and 14 and applicant's arguments against the substrate material, it is noted the substrate disclosed by Takahashi et al initially includes only a glass fabric. However, at the time the surface layers are formed on the substrate as rendered obvious by the secondary references (i.e. at the time isolating material is coated onto the upper and lower surfaces of the substrate), the substrate includes a glass fabric having been impregnated by epoxy resin.

As to dependent claims 6 and 20, it is the examiner's position, one of ordinary skill in the art would have readily appreciated in view of Delgadillo suggesting to employ excess resin to form the surface layers, that at the very least the amount of resin is a controlled parameter (resin supply means a controlled equipment parameter) which would define the thickness of the surfacing layer.

**Conclusion**


6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Todd J. Kilkenny** whose telephone number is (703) 305-6386, or if attempting to contact after December 18, 2003 (571) 272-1219. The examiner can normally be reached on Mon - Fri (9 - 5).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

TJK  
TJK

  
JEFF H. AFTERGUT  
PRIMARY EXAMINER  
GROUP 1300